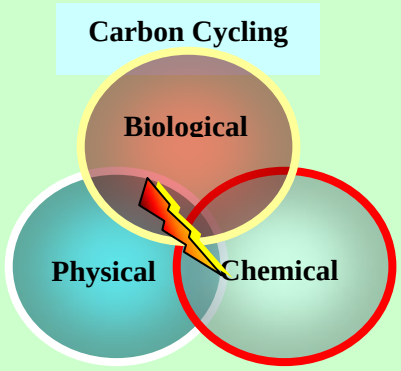
(SQ – 7) Soil Quality Considerations*: i.e., is it Aggrading, Sustaining or Degrading

Assessing Soil Quality & Soil Health is a function of many complex interactions, inputs and management factors such as :

- Climate
- Crops & Yield (i.e., biomass produced)
- Soil type
- Water Quality/Supply
- Irrigation Water Management
- Tillage Operations
- Fertilizer & Pest Management
- Crop Rotations
- Residue Management
- Soil Amendments: Manure, mulch, effluent, gypsum, etc.
- Cover crops



Soil pH		Salinity Class (dS/m) $EC_{1:1}$	Micro-bial Response	Soil Respira-tion At optimum temp. & moisture	Lbs. CO_2-C/ac/day	Aggregate Stability (> 0.25 mm) % Organic Matter	% Water Stable Aggregates	% Clay	% Water Stable Aggregates	RUSLE2 Soil Tillage Intensity Rating	RUSLE2 Soil Conditioning Index (SCI)
V. Strongly Alkaline	9.0									STIR is based on Field Operations (tillage) & its soil disturbing actions (Invert, Mix, Lift, Shatter, Aerate & Compaction).	SCI = (OM x 0.4) + (FO x 0.4) + (ER x 0.2)
Slightly Alkaline	8.5	Strongly Saline > 6.07	Few halophilic organisms are active	Unus-ually High Soil Activity	> 64					Lower STIR values = reduced soil erosion	If the rating is (+), the system is predicted to have increasing soil OM
Neutral	8.0	Moderately Saline 3.16 – 6.07	Salt tolerant microbes predomi-nate	Ideal Soil Activity	32 – 64						If the rating is (-), the system is predicted to have declining soil OM
	7.5										
	7.0	Slightly Saline 1.71 – 3.16	Major microbial processes influenced	Med. Soil Activity	16 – 32	12	85	80	86		
Mod. Acid	6.5										
	6.0	V. Slightly Saline 0.98- 1.71	Selected microbial processes affected	Mod. Low Soil Activity	9.5 – 16	8	81	60	82		
	5.5					4	77	40	78		
Very Strongly Acid	5.0			Very Low Soil Activity	< 9.5	2	75	30	74		
	4.5					1.2	70	20	70		
Ultra Acid	4.0	Non Saline 0 – 0.98	Few Organisms affected	No Soil Activity	0	0.8	66	10	65		
	3.5					0.4	53	5	60		

IMPORTANT!!! Use the Farm Record Form (Case Study) guide to assist in evaluating Soil Quality Trends: i.e., is Soil Quality Aggrading, Sustaining or Declining with current cropping system

OM = Organic Matter
FO = Field Operations
ER = Soil Erosion

(*References: NRCS Soil Quality Test Kit Guide & Soil Quality Guide: Assessment & Applications for Field Staff) rudy garcia 2008